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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/903,268	07/11/2001	Anthony Mazzurco	135740	9431

24587 7590 01/30/2006

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EXAMINER	
MERED, HABTE	

ART UNIT	PAPER NUMBER
2662	

DATE MAILED: 01/30/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/903,268	MAZZURCO ET AL	
	Examiner	Art Unit	
	Habte Mered	2662	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 November 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *12-27-2005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. The amendment filed on 07 November 2005 has been entered and fully considered.

2. Claims 1-18 are currently pending.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims **1, 3-7, 9-13, and 15-18** are rejected under 35 U.S.C. 103(a) as being unpatentable over Chi et al (US 6, 654, 341), hereinafter referred to as Chi, in view of de Boer et al (US 6, 616, 350), hereinafter referred to as de Boer.

Chi teaches a system where by at least one protection line is shared among SONET rings and identification and availability information of the shared protection line is distributed among the switches of the SONET rings using K-bye data in the SONET overhead.

5. Regarding **claim 1**, Chi a method of controlling communications in a shared protection architecture, where first and second network elements support communications over a plurality of working channels of respective rings using a shared protection channel common to all of the rings, comprising the steps of: passing control information for the first ring over the shared protection channel while indicating availability of the shared protection channel to rings other than the first ring; and

responsive to an indication that the shared protection channel is needed to pass communications traffic for a second ring, ceasing to pass the control information for the first ring over the shared protection channel and indicating the non-availability of the shared protection channel to rings other than the second ring. **(Chi discloses a communication system in Figure 6, where first and second network elements (i.e. 604 and 603 in Figure 6) support communications over a plurality of working channels of respective rings using a shared protection channel (i.e. a channel on protection line P4 in Figure 6) common to all rings (i.e. 600, 610, 620).**

Chi discloses that the allocation of the shared protection line is in general on a first-come, first served basis. See Column 5, Lines 3-9. Chi also discloses that the shared protection line for a multi-ring system carry K-byte information (i.e. control information). See Column 5, Lines 31-33. Given these disclosures, prior to a span switch request the protection line is a medium for transmitting control information for the multi-ring system of which ring 1 is one of the rings transmitting control information. When a span switch request on a first ring occurs, then only the control and traffic information of ring 1 will pass through the protection line after the span switch occurs.

Chi further discloses in this case that the availability of the shared protection channel to rings other than the first ring is distributed by the shared network elements. See Column 6, Lines 28-32.

Chi discloses in Figure 12 a system with two SONET ring networks with a shared protection line 1227. Chi discloses how requests are handled after a

span switch is executed on a shared protection line. See Column 5, Lines 60-64. Chi teaches that the shared protected line receiving the span or ring switch has to take into consideration the priority associated with the request. Accordingly in Figure 12, when a ring switch request occurs in ring 1205 for shared protection line 1227 as a result of a failure in link 1225 then the ring switch is executed based on the priority of the request. After the ring switch is executed then the control information for ring 1200 (i.e. first ring) ceases to pass over the shared protection channel and K-byte ring switch signal is transmitted to indicate the non-availability of the shared protection channel to rings other than ring 1205 (i.e. second ring). See Column 6, Lines 9-32.)

Chi while clearly establishing that the control information is passed on all protected channels including shared ones in the form of K-byte information, however, fails to expressly disclose span switch request on a link involves passing control information on the ring across all nodes.

De Boer teaches a system that uses a shared protection ring on the basis of user defined priority scheme.

De Boer discloses a span switch request on a link involves passing control information on the ring across all nodes. De Boer discloses a span switch can occur between two elements in the ring wherein the span switch is not between a first and second network element. **(De Boer indicates for both span and ring switch all nodes of a ring, such as nodes 104 to 114 in ring 156 in Figure 1, are informed of**

the protection switch through signaling information. See Column 11, Lines 9-17; Column 12, Lines 29-40; and Column 5, Line 64–Column 6, Line 5)

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Chi's apparatus to incorporate a span switch request for a fiber failure that passes control information on the ring across all nodes, the motivation being to ensure that the system is compliant with the two important SONET standards so as to be able to interface with other vendors' equipment that comply to the Standards. Namely the two important standards are Bellcore's Overview of the BLSR Architecture (Issue 3, December 1996) and International Telecommunication Union (ITU) – G.841 (October 1998). These standard bodies have adequately defined span switch request.

6. Regarding **claims 3, 9, and 15**, Chi teaches a method wherein the step of indication the non-availability of the shared protection ring comprises the step of generating a lockout of protection (LOP) on protection channels for any ring other than the second ring while the shared protection span is needed to pass communications for the second ring. **(Chi discloses that to indicate the non-availability of the shared protection ring comprises the step of generating a lockout of protection (LOP) on protection channels for any ring other than the second ring (i.e. Figure 12, ring 1205) while the shared protection span is strictly used to pass communication for the second ring (i.e. Figure 12, ring 1205). See Column 6, Lines 21-28. Chi discloses the means for achieving a circuitry for indicating the non-availability of**

the shared protection ring using the elements in Figures 4 and 12. See also Column 4, Lines 15-25; Column 5, Lines 47-50; and Column 6, Lines 25-33.)

7. Regarding **claims 4, 10, and 16**, Chi discloses a method wherein the step of ceasing to pass control information is responsive to an indicated ring switch on the second ring. **(Chi teaches under normal circumstances the shared protection line in a multi-ring system is used to carry control information. See Column 5, Lines 25-33. When a ring switch occurs it ceases to carry the control information of other rings and strictly carries all types of traffic for the particular ring the actual ring switch was executed. In Figure 12, shared protection span 1227 ceases to carry control information for ring 1200 and strictly carries the traffic associated with ring 1205. See Column 6, Lines 20-30. Chi discloses the means for achieving a circuitry for ceasing to pass control information using the elements in Figures 4 and 12. See also Column 4, Lines 15-25; Column 5, Lines 47-50; and Column 6, Lines 30-33)**

8. Regarding **claims 5, 11, and 17,** Chi teaches a method wherein the step of ceasing to pass control information is responsive to span switch on the second ring formed between the first and second network elements. **(Chi discloses under normal circumstances the shared protection line in a multi-ring system is used to carry control information. See Column 5, Lines 25-33. When a span switch occurs it ceases to carry the control information of other rings and strictly carries all types of traffic for the particular ring the actual span switch was executed until a higher priority request occurs. See Column 5, Lines 3-6 and 60-63. Chi discloses the**

means for achieving a circuitry for ceasing to pass control information using the elements in Figures 4 and 12. See also Column 4, Lines 15-25; Column 5, Lines 47-50; and Column 6, Lines 30-33.)

9. Regarding **claims 6, 12, and 18**, Chi teaches all aspects of the claimed invention as set forth in the rejection of claims 1 an d 4 but fails to disclose a method further comprising the step of generating a span switch signal on non-shared protection channels associated with the second ring.

De Boer discloses a method further comprising the step of generating a span switch signal on non-shared protection channels associated with the second ring. **(de Boer teaches the method of generating a span switch request on a ring. Since such a request is standardized by both Bellcore an ITU it is irrelevant which ring is involved in the request. Of course Chi has established that control information is exchanged over the protection channels. See Column 11, Lines 9-51)**

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Chi's apparatus to incorporate a span switch request for a fiber failure that passes control information on the ring across all nodes, the motivation being to ensure that the system is compliant with the two important SONET standards so as to be able to interface with other vendors' equipment that comply to the Standards. Namely the two important standards are Bellcore's Overview of the BLSR Architecture (Issue 3, December 1996) and International Telecommunication Union (ITU) – G.841 (October 1998). These standard bodies have adequately defined span switch request.

10. Regarding **claims 7 and 13**, Chi discloses a communications network using a shared protection architecture over a plurality of communication rings, each ring comprising one or more working channels for passing communications traffic, comprising:

first and second shared protection network elements supporting communications traffic over working channels for a predetermined set of the rings using a shared protection channel, the first and second shared protection network elements including control circuitry for:

passing control information for a first ring over the shared protection channel while indicating availability of the shared protection channel to rings other than the first ring; and increasing to pass the control information for the first ring over the shared protection channel, responsive to an indication that the shared protection channel is needed to pass communications traffic for a second ring; and circuitry for indicating the non-availability of the shared protection charnel to rings other than the second ring, responsive to an indication that the shared protection channel is needed to pass communications traffic for a second ring. **(Chi shows in Figure 12 a communication network using shared protection architecture over a plurality of communication rings. Network elements 1230 and 1240 are 1st and 2nd shared protection elements. The control circuitry for these shared protection network elements is shown in Figure 4.**

Chi discloses that the allocation of the shared protection line is in general on a first-come, first served basis. See Column 5, Lines 3-9. Chi also discloses

that the shared protection line for a multi-ring system carry K-byte information (i.e. control information). See Column 5, Lines 31-33. Given these disclosures, prior to a span switch request the protection line is a medium for transmitting control information for the multi-ring system of which ring 1 is one of the rings transmitting control information. When a span switch request on a first ring occurs, then only the control and traffic information of ring 1 will pass through the protection line after the span switch occurs.

Chi further discloses in this case that the availability of the shared protection channel to rings other than the first ring is distributed by the shared network elements. See Column 6, Lines 28-32. Chi discloses the means for achieving a circuitry for passing control information using elements in Figures 4 and 12. See also Column 4, Lines 15-25; Column 5, Lines 47-50; and Column 6, Lines 25-33.

Chi also discloses that in Figure 12 all traffic including control information for ring 1200 (i.e. 1st ring) ceases to pass over the shared protection channel (i.e. 1227) after a ring switch is requested and executed to pass communication traffic for ring 1205 (i.e. 2nd ring). See Column 5, Lines 3-7 and Column 6, Lines 20-24. Chi teaches a means to achieve a circuitry for ceasing to pass control information using elements in Figures 4 and 12. See also Column 4, Lines 15-25; Column 5, Lines 47-50; and Column 6, Lines 25-33.

Chi discloses the means for achieving a circuitry for indicating the non-availability of shared protection channel to rings other than the 2nd ring (i.e. ring 1205 of Figure 12) after a ring switch that indicated the shared protection channel

is needed strictly to pass communication traffic for the 2nd ring (i.e. ring 1205 of Figure 12) using elements in Figures 4 and 12. See Column 4, Lines 15-25; Column 5, Lines 47-50; and Column 6, Lines 25-33.)

Chi while clearly establishing that the control information is passed on all protected channels including shared ones in the form of K-byte information, however, fails to expressly disclose span switch request on a link involves passing control information on the ring across all nodes.

De Boer discloses a span switch request on a link involves passing control information on the ring across all nodes. **(de Boer indicates for both span and ring switch all nodes of a ring, such as nodes 104 to 114 in ring 156 in Figure 1, are informed of the protection switch through signaling information. See Column 11, Lines 9-17; Column 12, Lines 29-40; and Column 5, Line 64–Column 6, Line 5)**

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Chi's apparatus to incorporate a span switch request for a fiber failure that passes control information on the ring across all nodes, the motivation being to ensure that the system is compliant with the two important SONET standards so as to be able to interface with other vendors' equipment that comply to the Standards. Namely the two important standards are Bellcore's Overview of the BLSR Architecture (Issue 3, December 1996) and International Telecommunication Union (ITU) – G.841 (October 1998). These standard bodies have adequately defined span switch request.

11. **Claims 2, 8, and 14** are rejected under 35 U.S.C. 103(a) as being unpatentable over Chi in view of de Boer as applied to claims 1, 7, and 13 above, and further in view of in view of Ikeda et al (US 6, 144, 633), hereinafter referred to as Ikeda.

The combination of Chi and de Boer teaches all aspects of the invention as set forth in the rejection of claim 1 but does not disclose a method further comprising the step of indicating a lockout of protection (LOP) for any ring indicating a span switch while the span switch exists on the first ring and prior to the indication that the shared protection channel is needed to pass communications.

Ikeda describes a system where APS bytes are used to exchange failure information.

Ikeda discloses a method further comprising the step of indicating a lockout of protection (LOP) for any ring indicating a span switch while the span switch exists on the first ring and prior to the indication that the shared protection channel is needed to pass communications. **(Ikeda discloses how to use K-byte signaling. Ikeda teaches what the command "lockout of protection – span" means and clearly indicates that using a protection line is prohibited. See Column 24, Lines 22-23. Ikeda further shows that the "Lockout Of Protection" is a value supported in K-byte signaling as indicated in Column 26, Table 1.)**

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the combination of Chi's and de Boer's method of K-byte signaling by adding the value of "Lockout of Protection", the motivation being when a

failure occurs, the best optimal span switching will be performed by exchanging information on failures by means of the APS bytes (i.e. K-byte signaling).

Response to Arguments

12. Applicant's arguments filed on 07 November 2005 have been fully considered but they are not persuasive.

13. Applicant, in the Remarks in line 4 on page 7, argues that the primary reference, Chi, fails to teach that control information is passed over the shared protection channel during a span switch. Examiner respectfully disagrees with Applicant's conclusion. Chi clearly teaches that control information is passed over shared protection channels and makes no exception towards ring or span switches as indicated in column 5, lines 10-20.

14. Applicant, in the Remarks in lines 5-7 on page 7, argues that Chin fails to teach availability of the shared protection channel to other rings when control information is being passed over the shared protection channel in response to a span switch. Examiner respectfully disagrees with the Applicant's conclusion. Chi clearly shows that K-Byte information concerning the availability of a particular protection line is passed in Column 5, Lines 40-45 and 60-63. Further the Applicant's system indicates availability by sending NR message but this message is defined and supported by APS K-byte signaling as taught by the Standard bodies as well as by Inkeda as shown in Table 1.

15. Applicant, in the Remarks in the third paragraph in lines 1-4 on page 7, argues that claim 1 and consequently the Application does not teach prior to a span switch the protection line being a medium for transmitting control information. Examiner

respectfully disagrees with Applicant's conclusion. It is clearly stated in paragraph 36 of the specification that during normal operation the shared protection channels may be used like Chin's application to transfer control information between network elements. A NR (No Request) is a control signal.

16. Applicant, in the Remarks in the third paragraph in lines 10-14 on page 7, argues Chi reference does not teach a span switch occurring elsewhere on the ring. Examiner respectfully disagrees with Applicant's conclusion. It is obvious to one ordinarily skilled in the art that both references were teaching span switch occurring in any part of the ring.

17. Applicant, in the Remarks in the second paragraph on page 8, argues that de Boer fails to teach a shared protection span and how to control signaling over the shared protection span. Examiner respectfully disagrees with Applicant's conclusion. De Boer in Figure 1 shows shared protection spans elements 124, 130, 136, 142, 148, and 154 and Column 10, Lines 29-50 show how to control signaling over the shared protection span.

Conclusion

18. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

19. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following patent is cited to show the state of the art with respect to network management system for shared protection architecture:

US Patent (US 6, 683, 849) to Langridge et al.

The following patent is cited to show the state of signaling on BLSRs:

US Patent (US 6, 683, 891) to Mazzurco et al.

The following define the standard for APS K-bytes for SONET Systems:

GR-1230-Core Issue 3, December 1996, Bellcore, Section 6.2.2, Pages 6-16 to 6-19

G.841, ITU-T, October 1998, Section 7.2.4.1.2, Pages 58-61

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Habte Mered whose telephone number is 571 272 6046. The examiner can normally be reached on Monday to Friday 9:30AM to 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou can be reached on 571 272 3088. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

HM

01-22-2006

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